

**ABSTRACT**

Fractional bit rate encoding in a pulse amplitude modulation (PAM) communication environment allows the transmission of fractional bit rates, thus maximizing the use of signal-to-noise ratio (SNR) available on a communication channel. The invention allows the transmission of fractional bit rates in a PAM transceiver, thus allowing the encoding and transmission of a fractional number of bits on each PAM transmit symbol. By encoding a non-integer number of bits, a non power-of-two number of PAM levels can be encoded.

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